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Some Notes on Tumours.*

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The subject is one, which, at first glance, does not appear to be important from our point of view, and certainly not from that of the " man in the street," who never associates "cancer" with our patients.

I have come, however, to the conclusion that no apology is necessary so far as the subject of tumours is concerned, no matter to what extent I should do so for my treatment of such an important question. The problem of the increased number of cancer cases in recent years, and our lamentable state of ignorance in regard to the etiology and control of the disease, must give everyone furiously to think. It is the greatest problem with which the sister profession is confronted to-day.

When one reads that, after the age of thirty-five, one in eight females, and one in twelve males, die from cancer, one realises the impression—the indelible impression—left on the minds of the eleven students to whom their professor, after making the foregoing statement, added, after an impressive pause, " There are twelve of us in this room."

I should like here to mention one point which has often occupied my thoughts. As in the past, the Medical Profession has been largely indebted to animals for a very considerable amount, at least, of its knowledge of the normal functions of the human body, so I like to think that the work of the Veterinary Profession in combating disease in animals may be of service in throwing some light on disease in mankind. Personally, I am of the opinion that nothing but good can result from the collaboration and the free interchange of knowledge between the two professions, and I am convinced that if all the knowledge of the members of our own profession on the subject of tumours were only properly collected and analysed, it could not fail to be of some service in the fight against the awful malady of cancer.

In a short paper like this, it is, of course, impossible to deal adequately with such an important subject, but let us refresh our memories on the question so far as time permits.

* Presented to the Mid-West and South Wales Division at Cardiff, on October 17th, 1924.

In the first place let us be quite clear with regard to nomenclature. In the newspapers any tumour is a "cancer," but, strictly speaking, the term "cancer" is reserved for the carcinoma, from the microscopic appearance of which the name is derived. The names of the majority of tumours end in the suffix —OMA, the prefix generally denoting the nature of the growth: for example, " osteoma "—a tumour composed of bone tissue; " fibroma "—composed of fibrous tissue; and so on.

A tumour or neoplasm may be defined as " a concentrated mass of new tissue, non-inflammatory in origin, which lives a parasitic life at the expense of its host, and which is outside the control of the nervous system."

Tumours, as we know, are divided into two main groups:—(1) benign; (2) malignant.

The benign or innocent tumours resemble in structure the part from which they grow. They are usually circumscribed and surrounded by a capsule. They are slow growing, do not recur after removal, and do not reproduce themselves in distant parts.

The malignant tumours, on the other hand, are almost exactly the opposite of the benign in every respect. They resemble no normal structure, are not definitely circumscribed, and are not encapsuled. They grow rapidly as a rule, tend to recur after excision, and also tend to reproduce themselves in distant parts of the body.

Theories as to the cause of tumours are legion. We have had the cell-rest theory and the parasitic theory—which may be divided into two parts, namely, the theory that the cancer cells themselves are parasites, and the theory that other parasites, as yet unknown, are present in the tumours, continually stimulating the cells to activity by means of chemical irritants. " Cancer houses " have been blamed, and it has also been suggested that the disease is more prevalent in the neighbourhood of trees affected with those large warty growths one sometimes sees. Then as regards eating and drinking, what has not been blamed?

Over-eating in general—tomatoes, white bread, the over-indulgence in meat, smoking and alcohol have all been put forward as probable causes. One doctor,

however, stated the other day that in twenty-five years in a district notorious for cancer, the only cases he could recollect had occurred in total abstainers or in very moderate drinkers, and he wondered whether the present high duty on whisky had something to do with the increase in the disease. One drawback to such a statement is that unless accurate records are kept, mere 'recollections' alone, extending over a period of twenty-five years, are inclined to be rather foggy and unreliable. Cancer houses are now discredited, and quite recently one read of tomatoes being recommended as a sovereign cure for indigestion. So where are we ?

When I read of all these varied theories, I am more than ever convinced of the importance of collaboration between our own and the Medical Profession. If such collaboration had existed to the extent it should, I feel sure much time and labour would have been saved.

After all, in its essentials a carcinoma is a carcinoma, whether it exists in a mouse or a man, a hen or a human. Now, how many of our domestic animals do we see smoking long clay pipes, eating tomatoes, or over indulging in alcohol or meat ? And yet they suffer from tumours. The cause must surely be some factor which is common to all forms of animal life which are subject to such growths, and it would be very interesting to know whether any animal is immune.

The disease is said to be much more prevalent among civilised than among uncivilised peoples, but I am not aware whether any work has been done to prove whether domestication in the case of animals has affected the incidence of tumours. In my own work on diseases of poultry, tumours are comparatively frequent, but dead fowls are much more readily obtainable than the larger animals. I am inclined to think, however, that if the domestic animals were allowed to live out their normal lives, the percentage of tumour cases would not be far smaller than that recorded in man. Those of you in whose practice dogs play a considerable part know the frequency of mammary and other tumours. I have yet, however, to see a cow affected with a tumour the cause of which was proved to be over-indulgence in meat; or a case of epithelioma of the lip or tongue of a dog which I could honestly attribute to excessive smoking.

There is one theory of the predisposing cause of tumour formation which seems to hold water to a certain extent, and that is the theory of the influence of chronic irritation. In the case of human beings, cancer of the alimentary tract occurs most frequently in parts most liable to repeated irritation—as, for example, in the lower lip, tongue, cæcum, rectum, and so on. A large proportion of tumours in fowls, I find, occur in connection with the reproductive tract —a fact which also seems to bear out this theory. But granted that chronic irritation predisposes to tumour formation, such a fact does not explain the formation and the increase in size of secondary growths in other parts of the body which have not, so far as can be made out, been subjected to such irritation. There must be, one would think, a continuous irritant acting on each individual tumour cell, in both the primary and secondary growths. Then there is the other interesting question of the reason why the tumour cells prevail against the normal cells of the body in the struggle for existence.

Perhaps the theory which most nearly explains such phenomena is that of the parasitic origin of tumours. The position has been stated by Dr. Campbell in these words:—"Local irritation, by lowering vitality, diminishes resistance to parasitic invasion; the parasites provide a lasting irritant (probably of a chemical nature). Under this continued specific irritation, the malignant cells undergo a ceaseless multiplication, producing a degraded type of tissue, containing loose cells, and displaying a liability to degenerate; the loose cells are carried away with the parasites to the secondary sites, and, being thus subjected to the same kind of irritation as in the primary growth, behave in the same way; the chemical irritation caused by the parasites so disturbs the nutrition of the normal tissues that the malignant cells are able to survive in the struggle for existence with the normal cells."

Various suspected parasites, including bacteria, have been described as occurring in tumours. It is well known, however, that in many cases carcinomata show a tendency to early degeneration, thus rendering themselves liable to bacterial infection, so that it would be a very difficult task to establish definitely the etiological significance of one specific bacterium.

One could speculate for almost any length of time on the causation of tumours, but time will not permit; let us, therefore, discuss briefly their effects.

Personally I have not observed in our animals the condition of cancerous cachexia which accompanies malignant disease in man. In fowls death definitely due to tumours has, in my experience, resulted most frequently from internal hæmorrhage from a sarcoma —a tumour particularly liable to such a condition from the embryonic character of its blood vessels.

I might just mention one curious case of adenocarcinoma of the left kidney, where that organ had become completely absorbed in the tumour, and the right kidney had become hypertrophied to at least twice its normal size.

Still referring to malignant tumours, I have notes of a peculiar case of melanotic sarcoma in a mare.

The subject was about twelve years old and grey in colour. In the region of the anus the usual melanomata were present. The animal was showing great respiratory distress, and there was a diffuse swelling extending from the base of one ear, round the throat, to the base of the other ear. The mare died during the night, and on *post mortem* examination the swelling, on incision, showed both parotids and the submaxillary glands to be involved in the almost coal-black tumour, which had pressed on the trachea and larynx to such an extent as to cause asphyxiation.

Benign tumours usually cause death by more or less mechanical means, as in strangulation of the gut by a lipoma or fatty tumour.

Reverting once more to fowls, I have notes of two very interesting cases in which benign tumours were the cause of death.

In one instance the subject was extremely emaciated. As is so often the case, poisoning was suspected. The fowl was said to have been reduced to its skeleton-like condition in twelve hours, and was also said to have been laying the day previous to death. On *post mortem* examination, a ring-like fibromatous growth was found surrounding the intestine at about the middle of its length. This growth had so constricted the lumen of the gut that only fluid could pass. The intestine immediately anterior to the growth measured six inches in circumference, tapering to two and a half inches just posterior to the duodenum. The gall bladder was enormously enlarged, and it was utterly impossible for the condition to have been produced in twelve hours. Furthermore, no germ cell in the ovary was larger than a pin head—an object lesson on the reliability of some of the histories of cases we sometimes receive.

The other peculiar case of a benign tumour being the cause of death occurred in a fowl which was supposed to have died from the condition known as "Crop Bound." Certainly over the region of the crop there was a large swelling about the size of a medium sized orange, but the fowl, as in the other case, was emaciated and had certainly not died from overfeeding. On attempting to open the swelling I succeeded only in completely blunting the edge of my knife. I reflected the skin and discovered an enormous bony tumour situated just over the crop, and having a very slight connection with the cervical vertebræ. The crop was absolutely flattened, and only liquids could have passed beyond it. The rest of the alimentary tract was entirely empty of solid food, except the gizzard, which contained a little gravel and a few old grass stalks. The tumour weighed exactly half a pound, and was found to be an osteoma.

As regards treatment of tumours by means other than surgical—with that, perhaps, we as a profession are not at present much concerned. It is curious to note, however, that in the human subject, tumours, apparently malignant to both macroscopic and microscopic appearance, may, on rare occasions, disappear apparently spontaneously.

I regret that I have not been able to do anything like justice to the subject in this short and somewhat disjointed paper, but I should be very glad if I have interested anyone sufficiently to enable you to realise the great part our own profession *could* play in the fight against disease, not only in our own patients, but in our own kind, did we but organise and systematise our knowledge.

The paper was illustrated by a number of photographs, the majority of which were kindly lent by Professor Matheson of the "Dick" College.

Discussion.

Mr. J. J. Aveston reported that the operations performed for the removal of tumours at the Bath meeting of the division had proved very successful—he believed that they could say that the measures taken had resulted in the cure of each subject.

The President: I had a letter from Mr. Adams, of Dursley, in reference to the horse operated upon at Bath. A microscopical examination of a section taken from a tumour revealed it to be a fibro-sarcoma. There had, however, been no evidence of recurrence, and so far as one could tell the operation had been completely successful. Both the horses operated upon had made an uninterrupted recovery. He wished to say that the operations at Bath would have been very expensive to the division but for the generosity of Mr. Tonar, who had defrayed a great deal of the expense.

Mr. C. E. Perry: I had a valuable Friesian cow with a lump in the flank as big as a man's head. I diagnosed a tumour, and made arrangements with Professor Buxton to have it microscopically examined. After the injection of morphia and cocaine, I operated upon the tumour. Following the incision the "tumour" came out like a great balloon and burst upon the floor—it was a tuberculous cyst. I had never seen one in this position before, yet I have now two of them awaiting operation. I should like to hear members' experiences of similar cases. The subject of the above remarks was a young heifer.

Mr. S. Robinson: How can you distinguish such a growth as this from a tuberculous growth in the flank?

Mr. Perry: This cyst had a lining and was full of fluid; there were also tuberculous deposits all round the lining. It very possibly arose from a gland infection.

Mr. F. C. Hobbs: I have an interesting case of a mammary tumour in an aged Pomeranian bitch. About four months ago I took a growth from the second teat of the mammary gland. The wound healed up well, but since then I have got a development under the axilla, which is of so enormous a size as to be inoperable—that of four or five oranges. The owner does not wish her to be destroyed, as the animal is eating well, and there is no ulceration or smell, but the bitch cannot bring her legs together.

Mr. Perry: Probably the original tumour was malignant and it has gone to the axilla.

Mr. W. R. Watson: I was hoping that the essayist would have been here to give us some teaching as to diagnosis. My experience has been the same as that of Mr. Hobbs. I had what I thought was a simple mammary tumour, took it off, and it healed up promptly, but before three months the position was as has been described in regard to the axilla. At the end of three months the dog died of what I took to be septic absorption, as the growth in the axilla burst. I should like to be enlightened as to the method of diagnosing between the existence of a malignant or of a benign tumour.

Mr. J. H. Stewart: I do not know any way of diagnosing one from the other, but if you have ulceration and an offensive odour, you can be sure it is cancerous. Where I have unbroken skin I do not succeed in distinguishing one from the other.

Mr. G. H. Livesey: When I was in practice I used to see a great number of these tumours in the smaller animals, and I took a great deal of interest, some years ago, in the Cancer Research Fund. I knew Doctor Bashford very well, and these pathologists, who are working out the problem of cancer, are very anxious for the co-operation of the veterinary profession. I believe that to be, moreover, one of the reasons which prompted Mr. Bissett to write his paper. He has pointed out the necessity for the medical man and the veterinary practitioner working together. We can assist the medical men who are conducting this research very much by sending material to the Cancer Research Fund and the Middlesex Hospital. It does not matter if these tumours are not exceptionally wonderful—they want everyday material, of which they cannot get enough, so that if you are in doubt as to the character of any growth that you remove and you send it to the Cancer Research Fund they will send you down a diagnosis in a very short time, and they will supply you with bottles for packing the material. You have only the postage to pay, and it is a very cheap and reliable method of getting a diagnosis. When one is dealing with dog owners, particularly ladies, they get very anxious about the future welfare of their animals, and if you can show them, when you have removed a tumour, what the probability is of its recurrence, you go a long way to satisfy your clients if you have at any future time to perform operations.

The question has been raised as to the possibility of the diagnosis of a tumour being malignant or non-malignant. I used to be guided largely in forming my opinion by the feel of the tumour. My experience was that malignant tumours were rather rough, and even knotty, to the touch, whereas benign tumours were smooth. When a client was anxious about the patient, I used to try and get permission to remove a small portion, then using the ordinary freezing microtome and making a slide. You can stain the section quite easily, and you can all distinguish between cancer cells and the ordinary sarcoma and fibroma—and those are the chief types with which we have to deal.

I had some very remarkable cases in dogs—cases which, I think, require some explanation on the part of the research men. I should like to know why it is that when we get carcinoma of the mammary gland in a bitch it is so seldom very malignant. Many of these tumours make their appearance at the sixth year of life—they do not grow, they do not ulcerate, and the dog outlasts them—i.e., she reaches her normal span of fourteen or fifteen years. On the other hand, we get, now and then, carcinoma of the mammæ, which, so far as one is able to determine, is indistinguishable from the so-called benign form, and I do not see how it is possible to tell when a cancer is going to start rapid development with ulceration of the surface, followed by death. Or, again, what is the explanation of those tumours which grow so very much more rapidly on the bitch?

A spaniel bitch was brought to me with just a little lump on the side of its ribs—it seemed just like a wart. I thought little of it. I told the owner to have it cauterised, and that would be quite enough. He did not have that done, but he said he would return with the dog in a fortnight.

When he did the little spot had grown to the size of a marble. I told him that he might just as well have it out. That was done, and there was no trouble, but on cutting the skin I found the growth was carcinomatous. In three weeks the dog came back, and there was a growth in the cicatrix about the size of a marble. I removed it again, and this time the wound was a much larger one. Three weeks after there was another tumour—again the size of a marble. I advised the owner to have nothing more done, and the dog had to be destroyed six months after the first appearance of the tumour.

Another kind of tumour with which I have had particular difficulty is a melanotic sarcoma—one sees them in brindles—in dogs that have blue undercoats, such as Yorkshire Terriers and the true Airedale and the Bedlington. I met with one melanotic sarcoma of the upper jaw bone, and the dog had to be destroyed, not because it could not feed, but because the smell from the mouth made it impossible to keep him inside the house with any living person. Another case of sarcoma of the mouth gave me very great trouble. The owner said the dog had been vomiting blood. Yet it seemed perfectly well, and I could find no trace of vomit that had any blood in it. The tongue was, however, discoloured, and there were signs of blood-tinged mucus. I had his mouth wide open with the speculum, and found a very small oozing of blood round the base of the tooth behind the large carnascial in the lower jaw, but the tooth felt firm. I brought this case to the notice of the President of the Dental Association, and he said, "There is no doubt, we should remove the tooth." I said I did not like to do that, as I might have some nasty hæmorrhage to deal with, or there might be a tumour there; but he replied that if there was, there was nothing else to be done. I took the tooth out, therefore, but I could not stop the bleeding—it went on oozing for five days. The dog became anæmic and exhausted, and despite the injection of normal saline it died simply from loss of blood. The trouble was sarcoma at the bottom of the tooth socket. It taught me a lesson never to interfere with any again.

The President: I should like to thank Mr. Livesey for his remarks and to emphasise what he has said in regard to having tumours examined after they have been removed. I removed a large tumour growth from the vagina of a heifer, and, thinking it was a carcinoma, advised the owner to fatten her off. I sent the tumour to Mr. Bissett, however, and he informed me that the growth was a simple fibroma, and that the animal should be kept. She has been, and there has been no recurrence. She is now in calf and doing well. Some years ago I removed a small tumour from a little dog, but within three months the dog was covered with them. If I had had that examined, I should, of course, have found that it was malignant.

The Influence of Nutrition on the Incidence of Disease.

DISCUSSION ON Dr. J. B. ORR'S PAPER.

Mr. W. WOODS, F.R.C.V.S., Wigan, opened the discussion on Dr. Orr's paper, which we published last week, in the following terms:—

Let me first of all congratulate the Association that an authority of the eminence of Dr. Orr has been induced to prepare a paper for our discussion, and I feel sure that any useful practical experience will be welcomed by Dr. Orr, particularly if indicating in what direction further experiments might be useful in elucidating the problems connected with nutrition and health. I have not much fault to find with what Dr. Orr has put into the paper, but rather with what he has left out, and it is those gaps that I think he would be pleased that we should endeavour to fill. There will be general agreement with his statement that there is urgent need for research to determine the requirements for all the constituents of food which one knows to be essential. The subject of nutrition and disease seems to divide itself into three parts:—

First: The influence of mineral matter;

Second: The influence of organic matter generally;

Third: The question of vitamin influence.

Dr. Orr says that when we talk of a well-balanced food, we take no account of the mineral matter. This is true; we just lump it together as ash. Anyone who has followed the experiments at the Rowett Institute will be aware of the importance attached to a deficiency of mineral matter in the food, especially of the young, growing animal. Now, although these minerals are lumped together as ash I must, on behalf of feeders, claim that they have long seen the value of certain salts, particularly common salt and the lime salts. Before fish meal was prepared, codfish heads were well recognised as a valuable food for growing pigs, and oyster shells for laying hens. Dr. Orr says that the balance of the minerals is as important as any other ratio in the food, and ought to be equally worked out before any food can be called well balanced. Theoretically this may be so, but practically the difficulties seem to be insuperable. Take, for example, pigs, which have been the subjects of most of the experiments at the Rowett Institute. How are you going to feed pigs with a balanced food including salts? There are ten or twelve mineral salts, all of which should be in proper proportion. First, I ask, what should be the proper proportion of mineral salts to make a well-balanced food?

The answer must depend not on how much of that particular mineral salt the body requires, but how much of the mineral salt given is assimilated by the body. So far as calcium is concerned, the answer is comparatively simple. A pig putting on 1½ lbs. weight per day requires half an ounce of calcium for bone formation, and as only 50 per cent. of calcium taken into the body is assimilated, that means the pig must get one ounce per day in his food, and if the food does not contain so much, then it must be added to it, although I am not quite sure that an equal amount would be assimilated, if given in the form of lime water or chalk, to what would be assimilated if given in the natural food. In young racehorses it is recognised that lucerne, which is rich in lime, is a most valuable food, but I doubt whether lime water would take the place of lime in lucerne. But be that as it may, what about iron? It has been proved at this Institute that a deficiency of iron has been the cause of very serious trouble in young pigs, showing itself as a sort of white scour, and it is conjectured that it is a very common cause of serious loss in unweaned pigs throughout the country. I confess this was unsuspected by me. I have seen a lot of this diarrhœa in young pigs, but I never connected it with a deficiency of iron in the food. But what I am leading up to is this: How much iron should there be in a properly-balanced food? All the iron in the blood can be measured in grains, yet, judging by the amount of iron taken by anæmic people, the percentage capable of assimilation must be very small. Then take phosphates. If in excess, they seem to retard digestion, and certainly an excess, combined with hard water in horses, seems to tend to the formation of calculi in the bowels. The excess of phosphates appears not to be assimilated, but deposited in the colon. Similar remarks might be made about the whole of the salts. For instance, how much iodine is required? Practically, I would suggest that there are only three salts which are likely to be deficient in any ordinary food. The first is common salt; second, calcium salts; and third, iron salts. The other minerals will, generally speaking, be found to be in excess in most of the rations fed to the lower animals. The lower animals, excluding carnivora, mostly get a ration containing bran, which is rich in phosphates, though poor in lime, and the potash salts seem always in sufficient quantity. Common salt is recognised by every farmer to be necessary in addition to what is received in the food, and is added to the food of both horses and cattle or placed where they can help themselves, and it is easily explained that the absence of salt alone, even with abundance of other food, will produce death; the reason, of course, being that common salt is required for the formation of the gastric juice, without which digestion or solution of the food and its subsequent assimilation cannot take place, and therefore starvation can occur from want of salt alone. The calcium salts in pigs I scarcely look upon in the same serious light that Dr. Orr seems to do. I do not think a deficiency of salts in the bones of store or fatting pigs is of very much importance. In pedigree breeding stock no doubt it is so, but in stock simply intended for slaughter, providing it does not go to the extent of affecting the joints and so interfering with the fattening of the animal, I am doubtful whether it can be looked upon as a condition of ill health. Those of us who can remember the large importation of American horses thirty years ago, will remember that many of those horses did very badly for the first few months after arrival; that is, they developed lameness and exostoses in the bones, especially of the metacarpus and carpus. This was attributed by some to change of climate and hard roads. It was really

due to a deficiency of lime salts in the bones, due to the American method of feeding on maize and bran, but after a few months of careful British feeding, good oats and clover hay, the bones stood work as well as those of our own horses. I do not think I should like to say that these horses were not healthy, but they were certainly in a condition in which work produced disease. Opposed to them were the Argentine horses, largely fed on lucerne or alfalfa. These horses you could not lame, but unfortunately they had other propensities which made them unpopular. I understand that even ringbones have been attributed to mineral deficiency in the food. In my opinion, the evidence of this is insufficient. For the last fifteen years stallions affected with ringbone have not been allowed to be used for service and, so far as my personal experience has gone, I am convinced that we have much less ringbone than formerly. It is my belief that heredity, whether of conformation or not I am not prepared to say, has much to do with the production of ringbone, because horses are fed to-day practically as they were fifteen years ago. Then it is contended that in a horse that has been working in town, and whose legs get worn and want a rest, and is therefore turned out to grass, recovery is due to the fact that this horse gets supplied from grass with the minerals that are deficient in town-fed horses. I think, again, that the evidence of this is insufficient, because you must remember this—that no horses' legs get more worn than those of polo ponies. Polo is played in the summer, and polo ponies are wintered and not turned out to grass, but generally treated by what is known as soiling; that is, they are put in a loose box and fed with a modicum of oats, together with bran and hay, but their legs recover through the winter in the same way that town horses' legs recover during the summer. The question of mineral deficiency is, no doubt, very important, and it is well recognised as producing in sheep, fed for too long on mangels, an extraordinary condition of bone mischief, especially about the head, but it is a hobby that can be ridden to death. I know, because my hobby is organic ratios. Of course, Dr. Orr's experiments have been particularly in pigs and poultry, and I cannot see how practically you can carry out a scientifically correct balance of mineral salts unless you have a series of jars containing the different minerals required and add them to the food in the same way that a cook measures out spices for a plum pudding. This might, with difficulty be done in the case of pedigree stock fed on meals (although I don't envy the man his job), but 95 per cent. of the pigs in the country are fed for killing and not for breeding. They are not altogether fed on bought meals. Around all the large towns the feeders take hotel and other swill, and God help anybody that tries to make a balanced ration out of that. (Laughter.) In the cheese districts in England pigs are largely kept to consume the whey, so that probably they get a sufficiency of salts, except perhaps of calcium, which is supplied to them in the form of fish meal. Cheshire pigs are very highly thought of by the best butchers, yet if they get a balanced mineral ration it is by accident. There is much that is useful in the knowledge of the minerals required and academically it is all very interesting, but I suggest to Dr. Orr that if he is going to show the importance of calculating and giving a balanced mineral ration to pigs, his balanced ration is not complete until he has also produced his balance sheet showing that this is commercially profitable. I have taken so much time with this question of mineral deficiency that I shall leave to others any extended observations on the other parts. I must, however, say something of what to my mind is the cause of much more trouble, particularly in horses, and that is an unbalanced organic ration. I have endeavoured to show, in an article I wrote for Professor Wooldridge's book, that a too-high nitrogenous ratio is responsible for a good deal of that trouble which occurs almost entirely in cart horses, and which is known as twisted bowel, and I found that if my nitrogenous ratio was not higher (calculated before digestion) than 1 to 5½, my twisted bowels disappeared. Then, if I might suggest a line of research for Dr. Orr, there is that very common affection known in Scotland as "weed" or "Monday morning disease." This lymphangitis is the cause of considerable monetary loss, and yet how do we stand with regard to it to-day? One school maintains it is a wound infection arising from the affected limb itself, while another—with which I range myself—maintains that it is a toxin produced in the colon from bowel stagnation and bacterial fermentation. Investigation into this, with the view of prevention, would be commercially productive of very valuable results. My experience has led me to believe that an excessive fatty ratio is in some cases responsible for this affection, though we know that it occasionally occurs in an anæmic animal with a want of tone in the bowel. There are many diseases that will occur to this audience as being caused by improper feeding. Wheat, for example, is productive of laminitis, azoturia, and many other diseases are connected with feeding, but these I leave for subsequent speakers.

Dr. Orr enquires for *data* as to the health and length of life of the working horse with regard to his food. This is very difficult to give in a manner such as would be of any value. So far as my own Corporation is concerned, the work is divided into what is known as the Sanitary Department, where the work is heavy, in four-wheeled vans, and the Streets' Department, where the work is much lighter. In the former case, the working life is about 6½ years, while in the latter it is 10½. In both cases the feeding is the same, but most of these horses are cast because their legs are getting done for town work, and not because their general health is affected. The question of the deficiency of vitamins as producing disease is probably not of great importance in the lower animals, as they are not likely to be fed on food deficient in vitamins. Here let me say how cordially I agree with Dr. Orr in his remarks as to the word vitamin. It is a misleading word, at any rate the latter half of it, because, however necessary these food accessories may be to life, I believe it is thoroughly established that chemic-

ally they are not amino-acid derivatives. Some improvement has been attempted in the dropping of the " e " in the spelling of the word. I believe it is established that deficiency of one or other of these food accessories is the cause of beri-beri, and also of scurvy, and I believe something very like scurvy has been produced in pigs fed with vitamin deficiency, but so far as rickets is concerned I am extremely sceptical, and I am strengthened in this in a recent report from the Children's Hospital in Liverpool, where, out of a 100 rickety children, in 60—or more than half—there had been no deficiency of vitamins. However, it is extremely important that these substances, of which there are rumours of one or two additional ones having been discovered, should be thoroughly investigated. Undoubtedly their influence is great and it may be that cancer research may stumble on vitamin as having some close association with that baffling disease.

I have only to say a few final words, not of great importance, with reference to deficiency predisposing to tuberculosis in cattle. One can understand that healthy leucocytes may be able to combat successfully a small invasion of tubercle bacilli, but I think practical experience will agree that, given a cowshed containing tubercular cattle, some of the strongest, as well as the weakest in the herd, will soon show reactions to tuberculin.

Professor S. H. Gaiger, F.R.C.V.S., Director of the Animal Diseases Research Association Laboratory, Glasgow, said that Dr. Orr stated that the accumulation of direct experimental evidence was sufficient to warrant the view that defective nutrition as a predisposing cause of many infectious diseases, was as important clinically as the presence of the specific pathogenic organism which was the recognised determining cause. He (Professor Gaiger) did not want to belittle the statement that they might *to some extent* protect animals by giving them better diet, but he thought it should have been written that " defective nutrition as a predisposing cause of a *few* of the infectious diseases was as important clinically as the presence of the specific pathogenic organism which is the recognised determining cause." He asked Dr. Orr: Would he advocate a campaign of better nutrition of human beings against infection with typhoid? Supposing he knew of a human being who was going to be subject to the possibility of infection with typhoid, would Dr. Orr advocate that that human being should feed himself up well, or that he should have a dose of anti-typhoid vaccine? Was there any comparison between feeding and securing immunisation against the actual pathogenic specific organism causing a disease? Dr. Orr had also stated, " It is well known that under certain conditions animals may develop diseases where the causal agent is derived from the intestine, while other animals, though harbouring the infection, do not develop the disease. The nature of the diet in these cases is most probably the predisposing and the most important cause." They had, for example, many cases of intestinal infection in anthrax. Would feeding have any effect in guarding the animals against anthrax? Could they say that the best fed animals were those that escaped? In the bulk of infectious diseases it was the best animals that went.

There were points in Dr. Orr's paper that caused him surprise. Was it an exposition of Dr. Orr's own personal views or was he merely stating a case for nutrition? He thought that Dr. Orr, as a medical man, could scarcely believe some of the points upon which he laid stress. Dr. Orr stated that " the proportions of the various essential food constituents in concentrated foods are very different from those found in mixed pasture, which is the natural food of herbivora and which contains all the essential nutrients in approximately the proportions required for these animals." That was rather contradictory to another sentence in which the point was emphasised that certain sheep diseases might be due to something lacking in the natural pasture. It was said, " In several districts in the colonies it has been found that animals which remained healthy when allowed a wide range suffered from various diseases of malnutrition when confined within limited areas. These diseases disappeared when artificial manures, which supply certain deficiencies, were added to the pastures. It is possible that in some of the natural hill pastures of this country, which have not been treated with manures, there are deficiencies or excesses of one or more nutrients, and that these deficiencies have an influence on the incidence of certain diseases in sheep. During the past few years Capt. Elliot, M.P., and a team of co-workers have been investigating this subject." The question of sheep diseases was one in which he (Professor Gaiger) was particularly interested. They would suppose that sheep diseases were due to something lacking in the natural hill pasture, as had been suggested. There were four sheep diseases of great importance—braxy, trembling, scrapie, and dysentery in lambs. Braxy and scrapie occurred on all kinds of pastures, and lamb dysentery also (and in lambs on their mothers' milk). It was extremely difficult to see how, in sheep disease, nutrition was a factor at all. Emphasis should be laid on infection, whatever it might be.

Another paragraph in Dr. Orr's paper stated that " both the clinical symptoms and the pathological findings in the experimental pigs fed on iron-poor foodstuffs were those of a primary anæmia, and the disease, which appears to be not uncommon, can be prevented by the addition of inorganic iron to the food." Was that anything more than a clinical likeness? Had any steps been taken to show that in this disease there was anything more than a clinical resemblance? Was the natural disease in pigs due to an iron deficiency? He thought the factor of worms and intestinal parasites had been left out of account. He did not wish to belittle the importance of nutrition as a factor in regard to animal disease, but he did urge that they should keep it in its proper perspective. It was only one of a number of factors in relation to disease, such as cold, exposure, and fatigue. If he was to sum up the influence of nutrition

on animal disease, he would say that it was a large factor in a certain number of diseases, and certainly a greater factor in a few more diseases, but in the vast majority of diseases it was of no more importance than such other secondary factors as fatigue, exposure, etc.

Dr. Orr's Reply.

Dr. Orr, in reply, said he regretted that his clinical training had been entirely confined to human medicine, and that therefore he could lay no claim to any intimate knowledge on the clinical aspect of disease in farm animals. Whatever views he had put forward in his paper were based chiefly upon the results of experimental work which had been carried out so extensively in recent years both in this and in other countries. He continually kept in view that the results of experimental work where the conditions were controlled could not be directly applied in their entirety to animals kept and fed under ordinary conditions. He would have preferred, instead of speaking further, to have listened to an expression of the views of those present who were daily engaged in dealing with the diseases that occurred in animals under natural conditions. He was very much interested in what Mr. Woods had said with regard to the necessity for a proper balance in the ration in respect to the organic constituents. There were numerous experiments whose results showed that an excess or deficiency of either protein fat or carbohydrate had an evil effect on the nutrition of the animal and consequently upon its health. With regard to a point upon which some of his colleagues had been working, namely, the effect of varying amounts of oil on assimilation in the growing animal, it had been found that the addition of a certain amount of oil to a diet with a low amount of fat increased the percentage of calcium and phosphorus which was assimilated and retained by the animal. On the other hand, a large excess of oil might lead to intestinal disturbances or to the formation of insoluble calcium soaps, either of which circumstances prevented the assimilation of calcium. Mr. Woods' observation that it was not the amount of minerals in the ration that mattered, but the amount that passed through the wall of the intestine into the metabolic field, was very sound. Dr. Orr said he had been emphasising that very point on several occasions, because in some quarters it seemed to be believed that the mere addition of a mineral mixture to a ration was sufficient to secure immunity from all disease that might be connected with a faulty mineral metabolism. The ration should be such that each of the essential minerals and each of the essential organic dietary constituents could be absorbed from the intestine in the amounts and proportions required by the animal.

With regard to the feeding of pigs, there was no great likelihood of pigs developing disease through lack of calcium during the feeding period, provided the diet had been sufficient both in this and in other respects during the earlier periods of growth. But there was great possibility of pigs suffering from deficiency of calcium during the early period of growth unless foodstuffs rich in this mineral were provided. By mere arithmetical calculations it could be shown that the modern, rapidly-growing pig required to assimilate and retain nearly $\frac{1}{4}$ oz. of calcium, reckoned as calcium oxide, *i.e.*, lime, per day, and as only a percentage of the lime in the diet could be assimilated and retained, some amount in excess of this must be fed. On rations such as maize, potatoes, and bran, the percentage of calcium was so low that a sufficiency of calcium for the growth of the animal could not be obtained unless amounts of food beyond the capacity of the animal to assimilate were fed. There was no longer any doubt that a deficiency of calcium had been a very frequent cause of rickets, and probably a pre-disposing cause of other diseases in pigs.

It was interesting that some of the modern work which was being done on the pig was confirming the observations made by practical experts many years ago. Although this was true, it should be emphasised that the indiscriminate addition of either lime or any other mineral to the ration of the pig was liable to do harm. It was necessary to consider the requirements of the animal in connection with what minerals were present in the ration being fed to the animal. Some rations contained sufficient lime, and additions of further lime would do harm. It was the same with any other food constituents—excess was sometimes as harmful as deficiency. He was specially interested in Mr. Woods' reference to the imported horses. He (Dr. Orr) had never done any work on horses. Mr. Woods' observation that lucerne had been found to be of great value in the diet of thoroughbreds because it was rich in lime confirmed suggestions which had been put forward in the paper. The fact that American horses had developed bone trouble after landing in this country because they had been fed too exclusively on maize and bran, and that after a change to the British method of feeding these troubles had disappeared, was excellent confirmatory evidence such as he had been seeking for with regard to the importance of feeding on the health of the horse.

With regard to Mr. Gaiger's criticism he (Dr. Orr) had been unable to follow Mr. Gaiger's quotations from the paper while he was speaking as a copy of the paper with the pages numbered had not been supplied to him. He would, however, deal briefly with the points that had been raised. Mr. Gaiger had asked whether, under exposure to typhoid, the use of vaccine or a perfect diet should be advocated. Undoubtedly the first line of defence against typhoid, or any other infection of the intestines of a similar nature, was to ensure that the food was free from infection, and that the person exposed to the infection had a perfectly healthy digestive system. The use of vaccines was secondary to these dietary measures. In fact in human medicine, typhoid, cholera, and dysentery had been almost entirely eliminated, not by the use of vaccines, but by those measures which he had indicated as being the first and most important line of defence against these diseases. At the same time no one would dispute that under certain con-

ditions of mass infections the use of vaccines might be of great benefit as a preventative measure.

With regard to the question of the comparison between immunisation against disease and proper feeding, there was no doubt but that in a great many diseases, for example, tuberculosis, proper feeding, and a healthy environment were of far more importance than an attempt at artificial immunisation by vaccine or sera. The condition of the body undoubtedly very frequently determined whether an animal when exposed to an infectious disease would take the disease or not. That was common knowledge in human medicine also. Mr. Gaiger had evidently failed to grasp the point with regard to pastures and concentrated food. He (Dr. Orr) could assure Mr. Gaiger that it was a fact that a good mixed pasture contained essential elements of food in, at, or about, the proportions which were required to maintain health in the animals whose natural food was these pastures. The concentrated foodstuffs, on the other hand, were known by everyone who had studied nutrition to be markedly deficient in certain essential food constituents, and to have an excess of others which were harmful. But there were natural pastures, which had never been treated by manures, which had a mineral composition very different from the ordinary mixed pastures. Some of these pastures were deficient in lime, others in phosphorous, others in sodium, others in chlorine, and probably others in certain other food constituents. If animals were confined to these pastures and did not receive any supplementary feed, conditions of malnutrition followed by increased mortality took place. There were numerous examples of such conditions in the literature.

Dr. Orr instanced the work of Theiler, in South Africa, who had shown that deficiency of phosphorus in the pasture had been a very fruitful cause of disease in cattle. Very interesting cases of the same kind had occurred in America. For instance, in Montana deficiency of iodine had caused a high mortality in young pigs, and this condition, which was affecting the whole pig industry, had been obviated by the supply of traces of iodine to the food. In the same way in Michigan the sheep industry had suffered heavy loss through disease, and by the use of the salt deposits found round the Great Lakes it had been found possible to eliminate this loss. Loss from disease in animals through deficiencies of essential food constituents in the pastures had occurred in almost all new countries where animals had been fenced in, so that their range was limited, and they were unable to wander from district to district and choose the herbage which their natural instincts indicated. In this country we had tracts of natural pasture which had never been treated with manures, and it was probable that some of these might have been either originally deficient in certain substances or been partially depleted of these substances by the continual grazing, and that the composition of the pasture of these areas might show a deficiency of certain essential foodstuffs which might affect the health of the sheep. This, of course, was merely a suggestion, but it seemed worth while investigating to see whether or not it was based on fact.

Mr. Gaiger had referred to Capt. Elliott's investigation in sheep. This investigation was being carried out to determine whether or not there might be any grounds for the theory just stated. This work had been going on for three years, and the results so far obtained had shown that there was a very marked difference in the percentage composition of the pastures drawn from different areas, and that there were indications of a correlation between these differences and the sheep mortality in these areas. This investigation was to be more intensively pursued during next year, and it had been considered of such importance that Cambridge was coming in to help with it. He thought the veterinary profession would be interested in the results of this investigation, because it would show the difference in the composition of these pastures even though, as of course was very probable, no conclusions might be drawn with regard to the connection between these deficiencies and the mortality in the various areas. The results, however, might prove the starting ground for further clinical investigations.

In human medicine the trend had been for years towards the prevention of disease by proper nutrition. Proper feeding and a good environment were now looked upon as constituting the most successful methods of preventative medicine. During the last few years very valuable results had been obtained in the prevention of disease in the human being by these means. While, of course, there were diseases, such as scarlet fever, which probably had no connection with nutrition, undoubtedly many diseases, and especially tuberculosis, were directly connected with a faulty nutrition. In veterinary medicine probably the biggest problem was the elimination of tuberculosis in dairy cattle, and in the campaign for its elimination the question of the influence of the diet in predisposing the animal to disease should receive most careful attention. Cows with a big yield were subjected to a tremendous strain, and unless the diet contained in sufficient amounts everything which was required to provide the milk, the animal was forced to deplete her own tissues, thereby getting into a condition that made her more liable to develop disease when exposed to infection.

In conclusion, Dr. Orr said that there was, unfortunately, a wide gap between the research worker and the clinical expert. Whatever was done in laboratories or on experimental stations that looked to be of practical value had first to be applied and tested under practical conditions. It was necessary, therefore, that the clinical expert and the research worker should work hand in hand. The suggestions which he had put forward in his paper were merely for the consideration of the clinical expert, and if he found that any of the suggestions were worth while keeping in view, in carrying out practical experiments, or in making observations in veterinary practice, that was all that was intended in the paper. Dr. Orr hoped that the results of research in nutrition would be of practical value to the veterinary profession in their fight against disease in farm animals, which was the cause of such enormous loss to the country.

Foot-and-Mouth Disease.

R.A.S. Committee's Report.

The reappearance of foot-and-mouth disease in several districts invests the report of the special committee of the Royal Agricultural Society, presented at the last council meeting, with more than ordinary interest. The committee was appointed in July to inquire independently into the position in its non-technical aspects and features. It was conceded that the scientific side of the question was best left to the veterinary profession and other students of research, but there were rumours of laxity among farmers and others in the observation of preventive measures which it was thought could be fittingly investigated by stock-owners of experience. The report presented, embodied the findings and recommendations of the committee, of which Lord Northbrook was chairman, on these points.

This representative committee of owners of live-stock make important suggestions for the consideration of the authorities. An interesting modification proposed is that restrictions on the movement of animals should come into force automatically with the detection of suspicious cases. Past experience has suggested, and would justify, the adoption of some such measure, for it is during the elaborate process of diagnosing the illness that infection is most liable to be disseminated. If a body of responsible stock-owners advises this course the Ministry of Agriculture need have no hesitation in putting it into force. There might be opposition to its adoption, but the source whence the scheme originated would disarm the opposition of effective criticism. There is much to be said for the contention in influential quarters that efficiency of administration is of greater importance than the extent of the area scheduled.

The committee state that they are thoroughly in accord with the recommendation of the Departmental Committee that there should be one authority only for the administration of the Diseases of Animals Acts in each geographical county, and that such authority should include representatives of the county and any borough local authorities there in.

Other recommendations of the Committee are as follows:—

That standardised regulations should be issued to all local authorities setting out what they are to do in suspected and confirmed outbreaks in order that there may be uniformity of action.

That the Ministry of Agriculture should issue a general order to all local authorities providing that on a suspected case of foot-and-mouth disease being reported, a stand-still order covering a radius of five miles should immediately be put into force until the case is confirmed or otherwise.

That on the confirmation of an outbreak movement should be prohibited over a 15 miles' radius of the infected place, but that if no further outbreak occurred within seven days the area should be reduced to as small a radius as possible drastically controlled.

That inspectors who are present at the killing of infected animals and the burning of their carcasses should not be employed also for inspecting healthy stock.

That more stringent regulations should be issued and enforced concerning inspectors and slaughtermen as regards disinfection.

That the Ministry of Agriculture might with advantage tighten the regulations governing markets and cattle dealers.—*The Times.*

Licence for Methylated Spirit.

Under the above heading the following appears in the report of the proceedings of the Council of the British Medical Association, October 22nd, 1924:—

"The President, Mr. Basil Hall, speaking with regard to a resolution passed by the last Representative Meeting, gave particulars of an interesting contention on which he was still engaged with the inland revenue authorities. Some time ago he applied for a licence for commercial spirit—that is, pure methylated spirit, without pyridine or other denaturant—for surgical purposes. A special place was fitted up in the cellars for storage, and the quantity desired was not to exceed twenty-five gallons a year. It was for use at a nursing home. The application for the licence, however, was refused. He pointed out that french polishers and hairdressers were able to get the commercial spirit, and he did not see why it should be denied to nursing homes; he got a second refusal, however. On pressing the point, and saying that he would get a local member to ask a question in the House, it was suggested to him that he should use rectified spirit for such purposes Finally, the licence was conceded, but only on his finding a surety for £200 for good behaviour He replied that this was a curious request to make of a magistrate, and the case was still proceeding. But it was certainly a preposterous situation whereby any tradesman could get an allowance of commercial spirit up to fifty gallons and have a licence, and yet there was an embargo on its use in a nursing home."

The London Thoroughbred Stallion Show for 1925.

The War Office announces that a Show of Thoroughbred Stallions will be held, in conjunction with the Hunters' Improvement and National Light Horse Breeding Society, at the Royal Agricultural Hall, Islington, on March 3rd, 4th and 5th, 1925.

A Challenge Cup presented by H. M. The King will be awarded the Champion Stallion in the Show; and a Gold Medal will be awarded by the War Office to the owner. Sixty King's Premiums (including twelve Super-Premiums) will also be offered for award by the War Office.

In addition to the King's Premiums, a very limited number of War Office Premiums will be available for award on the recommendation of the County Horse Breeding Committees. These awards will not be made, however, until the routes of the King's Premium stallions have been arranged.

Copies of the regulations governing the award of the Premiums can be had on application to the War Office.

The Veterinary Record.

15th November, 1924.

THE VETERINARY SURGEON IN INDIA AND EGYPT.

It is with growing concern that we continue to receive accounts of the profession in the East falling on bad times. At one time, India, Egypt, and the Far East offered opportunities for our men in which they could show their ability, receive some reward for their service and attain some positions of importance, while at the end of their service there were pensions and a more or less comfortable retirement at home. To-day this is all changed and the prospect for the future is none too cheerful. We all know that great changes have taken place both in India and in Egypt, and though it is not within our province to enter into political arguments on the *pros* and *cons* of self-government for these two great countries, it is necessary for us to face the facts and to see how the changes now taking place are affecting our profession. The British Government, lending ear to the aspirations of many natives expressed in the catch words "India for the Indians," have allowed natives to take a large share in the government of that country, with the result that posts formerly held by Britons are now being filled by natives, and the Indian Civil Service is falling, if it has not already fallen, from its high estate. So far as our profession is concerned, many English veterinary surgeons are being replaced by Indians, and it is more or less understood that very few, if any, English will be appointed in future. Lord Lee's Commission, on which an article appeared a few months ago in the *Record*, made some recommendations which might have benefitted members of our profession already in India, but the report was not accepted by the Indian Government, and it is difficult to foresee what will now happen. Apparently the reforms and the increase of pay which were so ardently desired are not likely to materialise and the position of English veterinarians will become increasingly difficult. The Indian Veterinary Service Association at Calcutta take a very gloomy view of the future and advise those at home who are making enquiries as to service in India to be very careful not to commit themselves without obtaining the fullest information beforehand. The Association even advises men to answer no advertisements of posts until the Association is in a position to advise as to its value or disadvantage.

In Burmah the same conditions apply as in India, and veterinary surgeons may be interchangeable between one country and the other. Moreover, the present language examination is objectionable and may be made the means of preventing a man getting promotion, or even of getting him removed. There are few veterinary surgeons at home who are competent to form a true opinion of the service or who, unaided, would be likely thoroughly to understand the terms of service as published. Therefore it would be wise for anyone contemplating going either to India or Burmah to write to the Secretary of the Indian Veterinary Service Association for full information and, on obtaining the Government papers, to take the opinion of a good solicitor, so that he may be satisfied that he is not endangering his future by going East.

Egypt is no better case. The cry again is "Egypt for the Egyptians," and there will soon be no room, as at present there seems to be no post, for the English. That brilliant men, who have devoted the best years of their life to the advancement of Egypt, should be "turned down" for political reasons alone, brings only shame to the country. We have all admired the quiet yet magnificent work which has been done at Cairo by the European staff for the last twenty years, and it is a positive calamity that this excellent work should have been taken out of their hands, and themselves discarded, just to satisfy a political caucus in Egypt who at present have power.

It is a pitiful tale for our profession, but it should serve to wake us up to the necessity of holding fast together to secure just and proper treatment in those positions which may remain open for us.

Genetics and Animal Breeding.

The inaugural address of the Association of Economic Biologists was delivered recently by Dr. F. A. E. Crew, Director, Animal Research Station, Edinburgh, at the Imperial College of Science and Technology, South Kensington.

Selecting as his subject "Genetics in Relation to Animal Breeding," Dr. Crew said that stock breeding was now a business enterprise besieged with difficulties, and the breeder was turning more and more to the scientifically trained man for help in the elucidation of his many problems. Up till recently the animal breeders of Great Britain have held a pre-eminent position as improvers and distributors of livestock; but recent returns showed that the export of pure-bred livestock generally was diminishing. Countries which formerly imported from Britain had used their importations to build up stocks of their own as good as that which now existed in Britain, and were fast becoming independent of this country. It surely behoved the British stock-breeder to inquire whether and where he might gain some reinforcement to his art.

Circumstances were such that to-day research into the problems of animal breeding was best conducted at or directed by a research institute. Research was necessary and should be subsidized. It could not be held that to be a successful breeder of pedigree stock a man must have a thorough knowledge of the science of genetics; It could, however, be maintained that the State could not afford to neglect the services of the geneticist. Experimental breeding work must be conducted at, or in association with, research institutes; and only when this had been carried out extensively could considerable application of the science of genetics to the practice of agriculture be expected.

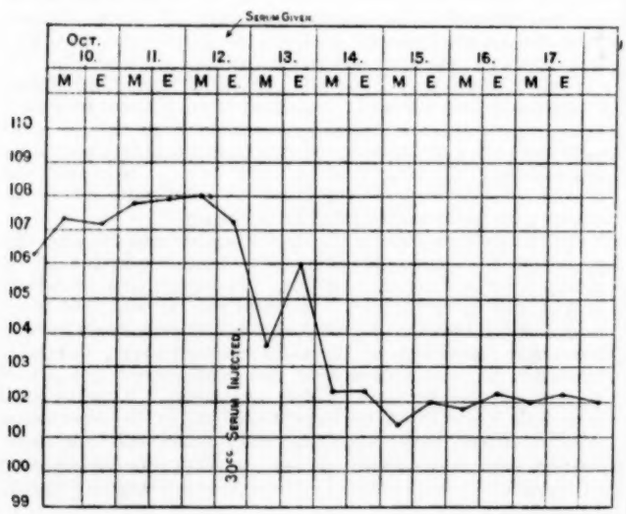
CLINICAL AND CASE REPORTS.

Anthrax (?) and a recovery, in a Cow.

By F. Chambers, F.R.C.V.S., Wolverhampton.

On October 7th I was called in by the police to examine the blood of a cow that had been found dead. The cows were all well when turned out after the morning milking, and the dead cow was found under a hedge at 4-30 p.m. The blood showed the presence of the *Bacillus anthracis*. The carcase was cremated the following morning. On the evening of the 9th, the owner noticed that one of his best cows was standing away from the others. He brought her up and found the temperature to be 106·4°F. I visited the farm the next morning and found the cow to be blowing slightly, temperature 107·4°F. Lungs normal. She was eating a little and had been seen to chew her cud at intervals. The cow was due to calve in a month's time. I took a blood smear, but, as expected, found nothing. I suggested that it might be a case of anthrax and sent away for anti-anthrax serum. This I received on the 12th and injected it the same afternoon. As will be seen from the accompanying chart, the temperature dropped the next morning, but went up a little in the evening.

I visited the farm again on the 14th inst. The cow was much better, but was slightly icteric. I administered a full dose of soda sulph., which acted well. The jaundice had gone two days later and the cow was quite normal again. The calf was seen to kick each day, so that the persistent high temperature had not harmed it. The owner, who was greatly interested in the case, took and recorded the temperature readings. The only reason why I consider that this might have been a case of anthrax is the absence of anything else that could be deemed responsible for such a high temperature, and the response to the injection of anti-anthrax serum.



Another Puzzling Skin Case.

By S. G. Masterman, M.R.C.V.S., Pembroke.

The cases reported by Mr. R. N. Lewis and Mr. Llewellyn Jones have interested me very much because of their resemblance to one that I had, which puzzled me at the time of its occurrence, and has done so ever since.

Subject.—Thoroughbred mare, six years old, in foal. I was asked to see her in the last week of December, 1922.

History.—She had been running out till a week before, when one morning she was noticed to have sore legs. She had, therefore, been brought in, and given linseed oil and washings with Jeyes' fluid solution. However, the condition kept getting worse and spreading, hence I was sent for. On arrival I found her legs and head all over sores and shreds of dead skin; her eyelids closed with swelling and fissured; the nostrils were in a similar condition and blocked with brown mucus. In addition, the hairless parts—inside of thighs, udder and vulva, were swollen and deeply cracked. The parts were not, however, tender and there seemed to be no constitutional disturbance; she ate as well as her lips would let her, and her pulse and temperature were normal.

Fortunately, this client of mine is not like that of Mr. Llewellyn Jones. When he asked me what was the matter with her, I told him that I had never before seen a case like it, and could not give it a name.

Treatment.—I gave her iron and quinine internally, dressings of antiphlogistine where I could cover and bandage it on, and Willow's pink heel ointment where I could not do so. She began to improve at once; had no fresh lesions, and was healing all over very nicely. But on January 8th, 1923, to my chagrin, I received a message that the mare had been found down, and unable to rise, so my client had shot her; but would I go over and make a *post mortem*?

I did not like this, for she was young, strong and big, in spite of her trouble; so I thought she should have been given a further chance.

Post-mortem revealed all the internal organs to be perfectly healthy, but all over the peritoneum, both on the abdominal wall and on the outside of the bowels, were scattered ridges about as thick as a blind cord, from one to four inches long, and either mulberry or scarlet in colour. I cut into several, thinking to find a parasite in them, but they seemed all fibrous tissue. I sent some specimens up to Sir John M'Fadyean, with the history of the case. He very kindly examined them for me, and told me that he thought they were parasitic in origin, though he had not been able to find a parasite. He also said that he had seen such lesions before, and that he did not think they had anything to do with the extraordinary symptoms that the mare had shown.

I also carefully examined the foal; it was quite clean everywhere, and fully developed; it was due to be born in early February.

I still think that if this mare had not been shot she would have recovered.

REVIEWS.

[**Surgical Diseases of the Dog and Cat**, with chapters on Anæsthetics and Obstetrics, by FREDERICK T. G. HOBDAY, C.M.G., F.R.C.V.S., F.R.S.E.; 3rd edition reviewed and enlarged, p.p. 435, illustrated. London, Baillière, Tindall and Cox, 1924. Price 15/-.]

The publication of the third edition of this useful book has been anxiously awaited, for the popularity of the earlier editions was so great that for some considerable time it has only been possible to obtain second-hand copies. The present volume is considerably larger and has been reviewed in many places, and further illustrations have been added. Though perhaps falling a little short of expectations, it is a thoroughly good little book and one which every veterinary surgeon should have on his shelf for reference. Though the title might lead one to infer that pathology forms a large portion of the book, the contrary is the case, since the author has almost limited his efforts to the description of the surgical treatment of disease. In this province he is admittedly a master, and it is a pleasure to read a treatise which is so evidently the work of a clinician and a practical man. At the same time, everyone will not agree with the methods he employs and will regret that, with modern manipulative skill and the gentler handling of animals now practised, the author should still consider it necessary so frequently to advise the forcible control or fixation of patients where such is not really necessary. In some cases it may be even a hindrance, as for instance the taping of a dog's nose before the operation of scaling the teeth. Such procedure is only necessary in about 5 per cent. of the patients, and the presence of the tape must effectually prevent the surgeon from doing and seeing his work properly. There are many who will disagree with the treatment advocated for the removal of contagious papilloma of the mouth. It is even doubtful if any active treatment should be indicated at all. Many surgical conditions are treated in a very cursory manner, and it is to be regretted that the author, with his vast experience, has not seen fit to take advantage of this edition to deal more fully with them. Perhaps he is keeping these amplifications in reserve for a fourth edition. The special chapter on anæsthetics is a very valuable one, especially on account of the full and lucid description given to the administration of chloroform. Local anæsthetics, which have become (and are daily becoming more) important are not given sufficient prominence, and little or nothing is said of the combinations of adrenalin and cocaine. Morphia and chloral are mentioned as narcotics, but no mention is made of chloretone and many other modern narcotics. The special chapter on obstetrics is still capable of much enlargement, but nevertheless, the advice given is sound and practical. More attention might have been given to the possibilities following on expert manipulation through the abdominal wall for the correction of many troublesome cases of dystokia. For the rest, the book is full of interesting clinical notes illustrating cases dealt with in the text. The illustrations are very numerous and very good, but are not always helpful to the seeker after knowledge; there seems little or no information to be gained from a photograph of a dog which has completely recovered after an operation, as in figs. pp. 130, 153, 204, 207, nor pictures of dogs "saved by hysterectomy" as in figs. 208 and 216; but on the other hand, some will be found very helpful to practitioners who have not much experience amongst canine patients, and all are interesting. The book is written in an easy, almost conversational style, which is well suited to it as a handbook for the general practitioner. We wish this publication success and heartily commend it to every veterinary practitioner, and we look forward to an early call for a fourth edition when the opportunity may be taken of correcting many grammatical and other errors, as, for instance, that on p. 348, in the section on ovariotomy. After a long paragraph in which the ovary is not mentioned and in which the last word is "intestine," the writer continues, "In young animals the latter may simply be scraped off with a blunt scapel." . . .! Unquestionably a dangerous doctrine!

The printers and publishers have done their work well, the usual green binding and gold lettering being in keeping with Messrs. Baillière, Tindal and Cox's library of veterinary publications.

The Indian Veterinary Journal.

We have received a copy of the first number of the *Indian Veterinary Journal*, the official organ of the "All-India Veterinary Association" (which, by the way, should not be confused with the Indian Veterinary Service Association).

The Journal is described as being a quarterly record of the Veterinary, Medicine and Surgery, and we congratulate this young Association on what it proposes to do for the cause of the Veterinary Profession in India.

The greater part of this first number is devoted to recording the proceedings of the Second Annual Conference of the Association, which was held at Lucknow, during March, 1924, under the presidency of Colonel H. T. Pease, late Inspector-General of the Indian Veterinary Service, and now Director of the Veterinary Service in Patiala State.

We hope to see in the next number of the Journal more space and energy devoted to the dissemination of professional knowledge, for a vast country like India should produce an unlimited supply of material for investigation and discussion. A few short papers on clinical subjects, which were read at the Conference, are printed in this number, but if any discussion on them took place, it has not been thought worth while to reproduce it.

The Journal is well turned out and can be obtained from the Editor, Mr. P. Serinivasa Rao, G.M.V.C., 18 Wallajah Road, Madras, at the rate of 10/8 per annum.

DIVISIONAL REPORT.

Mid-West and South Wales Division.

MEETING AT CARDIFF.

Several matters of urgent interest to the members of the profession were discussed at a well-attended meeting of this Division, which was held at the Royal Hotel, Cardiff, on Friday, October 17th, 1924, under the chairmanship of the President, Mr. C. E. Perry. The following members also signed the attendance book: Messrs. Esmond Brown, S. B. Cloder, W. F. Edwards, E. Philip Evans, G. L. Harber, F. C. Hobbs, J. Lewis, R. Moore, J. L. Perry, J. S. Pike, W. D. Rees, Arnold E. Roberts, H. S. Robinson, J. A. Stewart, W. R. Watson, and J. J. Aveston (Hon. Secretary). *Visitors:* Mr. G. H. Livesey and Mr. J. G. Wright.

The SECRETARY read the minutes of the previous meeting, which, after correction of the addition of the name of Mr. A. E. Roberts to the list of those present, were confirmed and signed.

VETERINARY INSPECTORS' FEES.

The Secretary, after announcing the receipt of a telegram of apology for unavoidable absence from Mr. A. S. Adams, of Dursley, said the only other item of correspondence was a letter from the parent body regarding the fees paid to veterinary inspectors by local authorities under the Diseases of Animals Acts. He did not propose to read the letter, as they were fortunate in having with them that afternoon Mr. G. H. Livesey, the General Secretary of the "National," who would, he had no doubt, be willing to make the position perfectly clear to them.

Mr. G. H. LIVESEY: What the "National" desires is to get to know from all the societies in Great Britain what fees veterinary inspectors require to be paid for the services which they render to county councils. For three or more years we have endeavoured to find this out. In 1913 Mr. Toop, who was Secretary of the Southern Branch, went to an enormous amount of trouble in finding out what scales of fees were paid by all the county councils in Great Britain, and he made out a little booklet which contained all this information, and the fees of one Council were compared with those of another. At that time an attempt was made to agree upon a uniform scale, but it was not considered satisfactory. Since then, of course, the war has intervened, and conditions have entirely altered, and at the present time there is a greater discrepancy in the fees paid than there has ever been The matter has been brought up before the "National" at several meetings during the last three years, and I can assure you that a fortnight does not pass without our receipt at the office of a letter asking what fees are being charged and what scale the "National" recommends. It would be unfortunate if the "National" had to write back and say, "There is no scale of fees which you can adopt with the backing of this Association—you must do the best you can for yourself." That is not a position in which the Association should find itself; therefore this year we have made a definite effort to find a basis of agreement amongst veterinary surgeons on this question of fees. With this in view we have circularised all the divisions asking them to call their veterinary inspectors together, so that they may discuss this matter and make some recommendation which would be acceptable to them in their own district. When these reports are received by the "National," either the Council of the "National" would take it up themselves, or they would depute the Veterinary Inspectors' Committee to see if, out of these various scales, one general scale, which would be applicable to the whole country, might not possibly be evolved.

It would mean that in some districts the inspectors would have to sacrifice a little, and in other districts men would get something added on. For example, the fee for inspection in one county is half-a-guinea, and some of the inspectors in the county are content, while the fee for the same work under another county council is a guinea, and they will not accept less, thinking they are none too well paid. I had a letter last Wednesday from a veterinary inspector, asking me about this scale, as his county council had had a scale sent from a neighbouring county council where the fees were very much less, and they proposed to review their own scale, and he feared a reduction: could the "National" do anything? I could only tell him to make the best fight he can and that the "National" would support him to the best of its ability. You see that the "National," at the present time, cannot do very much in this way, and my great difficulty is that many of the men who are the worst paid are the most content. But if these men would only make a good "grouse" about it, and complain, we might get something done. If the "National" decides upon a scale of fees, we will say of £1 1s., we will take the matter up with the County Councils' Association and endeavour to get them to say that the fees the County Councils are paying are insufficient. But it would be little short of disastrous if a County Council were then to call its veterinary inspectors together and ask them if they were satisfied with the present scale, and they were to reply in the affirmative—we should then get turned down. When we get what we want—an agreement on fees—we can perhaps force the hands of the County Councils. If you in this Society can come to some agreement and pass some recommendation on to me, through Mr. Aveston, I think I can promise that, provided other divisions do the same, we can do something in the matter.

The PRESIDENT: As we are not a meeting of veterinary inspectors, I do not think we can do anything here. Do you think it would be advisable to call a meeting of veterinary inspectors in the district to discuss this matter?

Mr. ROBERTS moved that a meeting of veterinary inspectors be called to be held in conjunction with the meeting of the Council of the Association at Bristol a month from that day. He was anxious to have a lead in this matter, as he had refused to accept the fees offered him, although he was doing the work.

Mr. STEWART seconded; "although the fees paid him by the Glamorgan County Council were good and quite satisfactory to him, he felt strongly that for the sake of the standing of the veterinary profession some action should be taken."

Mr. AVESTON informed the meeting that in Bath, a city of 75,000 inhabitants, he was paid twenty guineas annually, and he was supposed to look after all contagious, and suspectedly contagious, cases. He was certain they were taking the right course in calling a meeting to go into that question.

The resolution was carried unanimously, it being agreed that the date previously fixed for the Council Meeting should be brought forward for that purpose.

Mr. REES: What are the terms of reference—are they to collect information as to the fees paid, or to suggest what the veterinary inspectors consider should be an adequate minimum fee for the whole country? It is evident, moreover, that the first thing we have got to do is to try and get every member of the profession into the "National," then, once a minimum is fixed, it can be enforced.

Mr. LIVESEY: I suggest that you make this reference fairly broad; that you endeavour first of all to obtain the information as to what fees are paid by the County Councils, Boroughs, and Cities in which this division operates, and in order to do that I should suggest that it would not be an infringement of your rules if you invited the men who are not members of the Association to come forward and give their assistance and information just for that meeting—they need not necessarily vote. I should think they would have the *esprit de corps* to come forward and assist, because this is not a matter solely for the division, or for the "National," but for the whole profession. This has been done by the Midland Association. They are inviting veterinary inspectors from all parts of the county to take part in the movement. I think you will need the help of everyone who is in a position to supply it to get full information as to the fees paid in not only every individual inspectorship, but the fees paid in the way of salaries, and, further, to enable you to consider the minimum scale of fees which your division consider should be recommended to the "National" for consideration for adoption for the whole country—to gather information and to recommend a scale.

Mr. AVESTON: We have recently had a request to consider the fees paid in connection with tuberculin-tested herds.

Mr. LIVESEY: That is an entirely different matter.

Mr. AVESTON: You could not help us in that now—you could not suggest a scale that we could publish....

Mr. LIVESEY: I should go into this other question first, and we will deal with that later if you desire.

Mr. AVESTON: There are inspectors in certain towns in this division who do not belong to it. It would be a great convenience if members would ask any inspectors they know to attend the meeting.

It was eventually decided to circularise every member of the profession in the division with the notice of the forthcoming meeting at Bristol, containing an agenda embodying the terms of reference, and a request that each veterinary inspector should bring his scale of fees with him.

ATTENDANCE AT DOG SHOWS.

The meeting proceeded to the consideration of the following resolution, which had been circularised to all the divisions by the parent body:—

"We, the members of the Western Counties Veterinary Medical Association, consider that the time has arrived when veterinary surgeons should be paid an adequate fee for their attendance at dog shows."

Mr. ROBERTS: Does that motion mean dog shows alone, or other shows as well?

Mr. LIVESEY: Dog shows only, at present.

Mr. REES: I am sorry it does not go further and include all the shows at which the services of a veterinary surgeon are required.

Mr. STEWART: I agree that the time has come when we should be paid for services rendered at these shows, but I foresee a great difficulty in getting all the veterinary surgeons into line.

The President read the following letter upon this subject which he had received from Mr. A. S. Adams, of Dursley:—

"Regarding the question of appointments at shows, I entirely disagree that the qualification for such appointment is the subscription to the show. I recognise that it would be a difficult matter to convince a show commmittee that they had not a perfect right and the best of business reasons for conferring the appointment of Honorary Veterinary Surgeon, if acceptable, to the largest subscriber from our profession to their funds. I do hope that no decision will be arrived at which would debar members of the Mid-West from acting as veterinary surgeon in an honorary capacity at local shows without payment."

Mr. WATSON: I discussed this question with Mr. Adams yesterday, and he asked me to convey to the meeting that the statements in his letter were made solely in reference to local hunt and similar shows, lasting only a day, and did not include such shows as lasted for several days.

A member asked what became of the money they subscribed to these shows. In his opinion any profits were frittered away, an example within his knowledge being a presentation to the police. He had always paid his subscription, but times were changed, and they could not afford to pay these subscriptions.

Mr. EVANS complained of the inadequacy of the thanks which was accorded them for their services at shows—not infrequently they received none at all. He thought it was quite time that something was done to alter the state of affairs, and that veterinary surgeons who officiated at dog and other shows should be remunerated.

The PRESIDENT remarked that he had acted as hon. veterinary surgeon to the Bristol dog and other shows for twenty years, and he did not feel that he could ask them for a fee now. They treated him very well indeed, and he was perfectly sure that if he were to say he wanted a fee there would be a dozen who would offer to do it for nothing.

Mr. Rees: I think we are rather overlooking the fact that, if a resolution of this sort were carried, it would become binding on all the members of the profession. I hope that members of the "National" would be true to the spirit of the resolution and act accordingly. I think the time has come when we of the profession should receive adequate compensation for all the services we render. I move that we support this resolution from the Western Counties Division.

Mr. Roberts seconded the motion, which was carried with one dissentient.

New Member.—Mr. C. H. Sheather, of 50 York Terrace, Regent's Park, London, was elected a member of the Association.

Mr. Norman Bissett, M.R.C.V.S., of the University of Cardiff, had prepared a paper on "Tumours." This very interesting contribution was read by Mr. Stewart, and furnished an excellent discussion.

[Mr. Bissett's paper, together with the ensuing discussion, are published elsewhere in this issue.—Ed.]

The essayist was accorded the hearty thanks of the meeting on the proposition of Mr. J. L. Perry. Mr. G. H. Livesey was also thanked for his visit, and a similar tribute to the President for his conduct in the chair terminated the proceedings.

The company afterwards enjoyed the hospitality of the Cardiff members, who entertained them to tea at the Royal Hotel.

J. J. Aveston,
Hon. Secretary.

Victoria Veterinary Benevolent Fund.

A quarterly meeting of the Council of the Fund was held at 10 Red Lion Square, London, W.C.1, on Thursday, October 2nd, 1924, when there were present:—

Mr. S. H. Slocock (President) in the chair, Major J. Abson, Mr. J. W. McIntosh, Major-General Sir John Moore, and Mr. E. Alfred West.

Apologies for absence were received from Mr. F. G. Samson, Mr. F. L. Gooch, Mr. J. Ewing Johnston and Mr. H. J. Dawes.

1. *Minutes.* The Minutes of the previous meeting having been published, were taken as read and signed as correct.

2. *Secretary's Report.* Since the previous meeting the following new subscriptions and donations have been received:—

From the appeal issued by the National Veterinary Medical Association in the *Veterinary Record*:—

	£	s.	d.	£	s.	d.
D. J. Anthony		10	6			
H. W. Caton (additional)	1	1	0			
O. A. Ducksbury ...		10	6			
A. B. Forsyth		10	6			
T. Going, Capt.		10	6			
P. Gregory		10	6			
D. Lloyd-Jones	1	1	0			
Carried forward	4	14	6			
Brought forward	4	14	6			
J. H. Ripley		10	6			
Hy. Taylor (additional) ...		10	6			
A. L. Wilson		10	6			
				6	6	0
T. Dunlop Young (increased)				1	1	0
W. F. Widden				1	1	0
Central Veterinary Society (increased)				5	5	0
Donations.						
Central Veterinary Society ...				5	5	0
Bolton's Cinema				46	4	0

3. *Cases.*

No. 22, Mrs. W., widow, aged 87, very infirm. It was resolved that the grant of 25s. per week in this case be continued.

No. 26. The Secretary reported that Mrs. W., who had received assistance from the Fund since 1917, had died on August 6th. A letter of thanks was received from the daughter, saying that the grant helped her mother to spend her last days peacefully, and free from financial worries, and adding, "I can never thank you sufficiently for your unfailing kindness and courtesy."

No. 57, Miss M., aged 44, daughter of deceased member. Ill-health prevents continued occupation. It was resolved that a grant of 10s. per week or the equivalent be made for the ensuing quarter.

No. 67, Mrs. B., widow, aged 31, two children. A report was received from Mr. Jackson Young on this case, and after careful consideration it was resolved that as the applicant appears now to be able to support herself, the grant be not renewed.

No. 74, Mrs. H., 60, widow, three children. One daughter, 34, two sons, 42 and 32. Disabled. No income. It was resolved that the grant of 10s. per week be continued for the ensuing quarter.

No. 75, Mrs. J., 47, widow, one daughter, 17, barmaid. Two sons, 11 and 9, at school. No income. It was resolved that the interim grant of £1 10s. 0d. made by the Executive be approved, and that a further grant not exceeding £2 be made to meet special needs.

No. 79, Mr. H., member, 51, four children, one earning 14s. per week, two at school. Income: Pension £35. Salary £3 weekly. The correspondence in this case was carefully considered, but it was resolved that no further grant be made.

No. 80, Mrs. M., widow, aged 48. One son, 18, in army. The action of the Executive in making an immediate grant of £2 was approved, and the Secretary was instructed to obtain further particulars.

No. 81, Mr. M., aged 36. Son of deceased member. Unemployed. The action of the Executive in making an immediate grant of £4 was approved, and the Secretary and Treasurer were authorized to take any further action that may be necessary in this case.

4. *Investments.* The Treasurer reported that the legacy of Mrs. Woods of £500 had been invested in the purchase of £761 15s. 1d. Local loans 3 per cent. Stock, and that donations to the amount of £251 9s. 4d. had been invested in the purchase of £250 Australia 5 per cent. Stock 1935-45. It was resolved that the investments be approved.

The Veterinarian's Library: Some Useful Books.

By a Member of the Royal Agricultural Society.

The value of a veterinary library cannot be overestimated, for, travelling up and down the country, seeing cases as veterinary experts do, many problems constantly crop up which are not covered by the ordinary veterinary text books. It is my object in the present article to direct attention to some of the more important books on veterinary science, and while it will be absolutely impossible even to mention all the books that are in print on the subject, many standard works now out of print will have also to be excluded for want of space. To these writers the author of the present article tenders his apologies. No personal reflection is intended by not referring to their books, as they are excluded for want of space. Veterinary surgeons with a taste for book collecting should foster it, and arrange with second-hand booksellers in the districts they visit to report antiquarian items on the subject to them. Valuable books long since out of print can often be picked up for sixpence or a shilling, and in due course, a very valuable and almost complete library of the subject will be obtained.

Naturally, in a subject covered by so large a number of books, some classification is advisable, but obviously in considering the various branches of the subject, I shall omit elementary text books, which the average veterinary surgeon will have abandoned long ago, and give works of a more solid character only, both old and recent. The subject can be conveniently considered under several headings: first, anatomical; second, hygienic; third, medical; fourth, obstetrical and physiological; fifth, surgical; and sixth, toxicological. I will now proceed to mention a few books under each of these headings.

First of all as regards anatomy, Strangeway's "Veterinary Anatomy," published by Green, tenth edition, 1917, at 25s., is one of the best. It is a comprehensive work of over six hundred pages, and is issued in convenient demy octavo size.

Bradley's "Outlines of Veterinary Anatomy," published by Bailliere at 10s. 6d. in 1897, is another good book on this branch of the subject. The same author has written books dealing with the anatomy of the dog and the horse, which can be added if desired.

With regard to works on the Hygienic branch, two of these also may be named, the first, R. G. Linton's "Veterinary Hygiene," published by Green last year, at 26s. net, in the form of a royal octavo volume thoroughly up to date; and the second, Smith's "Manual of Veterinary Hygiene," published by Bailliere some years ago, and now, I believe, out of print.

Some Medical Works.

The most important branch of the veterinarian's library is probably the medical section, and of this there are quite a number of books. Messrs. Bailliere issue an interesting book, "Veterinary Materia Medica, etc.," which most veterinary surgeons will like to have. Then there is Hurndall's "Veterinary Homœopathy," published by The Homœpathic Publishing Co., which ably covers this aspect of veterinary medicine. Messrs. Bailliere issue several other books on the subject, notably "The Practice of Veterinary Medicine," "The Principles of Veterinary Medicine," and "Text-book of Veterinary Medicine." The most important work of all, however, on this subject is "A System of Veterinary Medicine," edited by E. W. Hoare, which the firm publishes in two volumes at 55s. net. Volume I. deals with the microbial diseases, while the general diseases are covered in the second volume. These two books contain nearly three thousand pages. Special animals have special books dealing with their ailments and medical remedies. For instance, Bailliere issued in 1914 a book by H. C. Reeks, "The Common Colics of the Horse: their causes, symptoms, diagnosis and treatment," at 6s. 6d. net, which is of great interest and value. Most veterinary surgeons will probably have Gresswell's "Veterinary Pharmacopœia," which Bailliere also issue. I believe this book is now out of print, but copies are not difficult to get second-hand.

With regard to books dealing with the obstetrical and physiological aspects of veterinary science, there is a fair number to choose from. There are two books of identical title on "Veterinary Obstetrics," by Dalrymple and Fleming, both issued by Bailliere. A new edition of the latter was issued in 1917 under the co-authorship of J. Craig, entitled "Veterinary Obstetrics, including the diseases and accidents incidental to pregnancy and parturition," and many general veterinary manuals cover this all-important subject.

With regard to physiology pure and simple, Paton and Orr's "Essentials of Veterinary Physiology," and Sir F. Smith's "Manual of Veterinary Physiology," published by Green and Bailliere, at 25 and 30 shillings net, are two of the best.

Some Surgical Manuals.

Operations are coming much more into vogue now in veterinary work than they were twenty years ago, and therefore the general practitioner must have really good books on the surgical aspect to be able to cope with any or every case to which he may be called.

Two good books on this branch of the science are found in Cadiot and Dollar's "Studies in Veterinary Medicine and Surgery," and Dollar's "Regional Veterinary Surgery and Operative Technique." Both these are published by Bailliere at 15s. and 25s. respectively. The first is the older work of the two, while the second was re-issued in 1920, and contains over eleven hundred pages. Messrs. Bailliere also

(Continued at foot of first column next page.)

NOTES AND NEWS.

Diary of Events.

Nov. 20th—Meeting of the Western Counties' Division at Taunton.

Nov. 26th—Meeting of the Scottish Metropolitan Division at Edinburgh.

Nov. 28th—Meeting of the Royal Counties Division at 10 Red Lion Square, W.C.

Nov. 28th } R.C.V.S. Written Examination for
Nov. 29th } D.V.S.M.

Dec. 1st—4th—Oral and Practical D.V.S.M. Examination Edinburgh and London.

Dec. 8th—R.C.V.S. Written Examinations—Membership Diploma.

Dec. 11th—R.C.V.S. Oral Examinations commence in Dublin.

We hear that Mr. A. S. Leese, M.R.C.V.S., was successful at the Stamford Municipal Election in defeating the Labour candidate by 36 votes.

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It is a long time since there have been so few enquiries for assistants. The number of men requiring places is steadily increasing and the difficulty of finding employment is growing. A serious problem confronts us, as to what is to be done for the surplus of qualified men.

* * * *

In response to our last request for clinical articles and case reports we received quite a number of interesting communications, many of which our readers have now perused. The supply is rapidly failing and we once more ask every one to make a special effort to send some contribution. We repeat if only *one* member in *ten* sends *one* contribution each *year* we shall be able to publish a good clinical section every week.

(*Continued from previous page.*)

issue three other works on the surgical side, one dealing principally with operations, and two of the same title "Principles of Veterinary Surgery," by Messrs. Merillat and Williams respectively. I believe these two are now out of print, as I have not seen them in recent lists. If so, they will have to be ordered from second-hand booksellers.

We now come to the last section of the practitioner's library, namely, that dealing with toxicological questions. Two works of identical title, both published by Bailliere, may be recommended with every confidence. These are G. D. Lander's "Veterinary Toxicology," published in 1912 at 8s. 6d., and J. A. Nunn's work issued in 1907 at 5s. We may expect the early publication of new works on this most important branch of veterinary science, as it is receiving, and merits, considerable attention.

Obituary.

THE LATE DR. DUNCAN MCEACHRAN.

A Montreal correspondent to *The Scotsman* of October 25th states :—

"In his 93rd year, Dr. Duncan McEachran died at his home, Ormsby Grange, Ormsby, Quebec, to-day. Mr. McEachran had a distinguished career, being for many years Dean of the Faculty of Veterinary Science and Comparative Medicine at McGill Univeristy, and veterinary adviser to the Canadian Government.

"Dr. McEachran was born at Campbeltown, Argyllshire, Scotland, October 27th, 1841. His father was the late David McEachran, for many years a member of the Town Council, and for five years preceding his death Senior Baillie of Campbeltown.

"Duncan McEachran, after receiving a sound elementary education at the schools of his native place, at the age of seventeen proceeded to Edinburgh to take up the study of veterinary surgery under the late Professor Dick. Shortly after completing his professional studies, in the autumn of 1862, he came to Canada, and for three years engaged with marked success in the practice of his profession at Woodstock, Ontario, at the same time proceeding to Toronto during part of the winter to give lectures on professional subjects.

"In 1866 he removed to Montreal, where he soon built up a large and lucrative practice, for the fame of his professional skill and technical knowledge had preceded him.

"In 1875, to accommodate the increasing number of veterinary students, the Montreal Veterinary College was established by Dr. McEachran, and the commodious college buildings on Union Avenue erected at the personal expense of the founder and Principal. This College was long considered the very highest of its class in America.

"The Montreal Veterinary College made rapid progress, the thoroughness of its sytem of training and the high standing ot its graduates attracting students from all parts of the United States and Canada. It then became more closely affiliated with McGill, becoming the Faculty of Comparative Medicine, its Principal, Dr. McEachran, taking the official position of Dean of the Faculty.

"It was largely on the advice of Dr. McEachran that the Dominion Government created the present cattle and quarantine service, and established the quarantine station at Point Levis, Quebec. Dr. McEachran was appointed Chief Inspector for the Dominion, and was practically given charge of the organisation of the service.

"In June, 1868, Dr. McEachran was married to Esther, youngest daughter of the late Timothy Plaskett, of St. Croix, West Indies, and their family consisted of two daughters—Evelyn Victoria, who died May 24th, 1869, and Jeanie Blackney McEachran."

CATMUR.—On the 8th November the result of war wound, Maxwell Gunn, M.R.C.V.S., son of William and Emma Catmur, Terrace Lodge, South Hackney, aged 25. No flowers. Thanks for 25 years of life.

WILLIAMS.—On the 10th November, at his residence, 95 Pimlico Road, Sidney Joseph Williams, D.S.O., M.R., C.V.S.L., Major late R.A.V.C. (T.F.), veterinary surgeon to His Majesty the King.

CORRESPONDENCE.

Parasitology and the Veterinary Curriculum.

To the Editor of the Veterinary Record.

Sir,—I have read the Editorial Article under the superscription of "Parasitology and the Veterinary Curriculum," which appeared in the *Veterinary Record* of November 1st, and as one of those actually engaged in the teaching of the subject in a veterinary school, I cannot allow some of the statements contained therein to pass unchallenged.

I am familiar with the articles of Professors Nuttall and Leiper on the instruction in Parasitology given in medical schools, and would only remark that in contrast with the criticism upon the teaching in veterinary schools, contained in the article referred to above, they base their contentions on actual personal observations.

Before the writer of the editorial launched out on a tirade against the inefficiency of the instruction in the veterinary curriculum, it is obvious that his investigations consisted of nothing more than a glance over the curriculum as laid down by the Royal College of Veterinary Surgeons, and over the prospectuses issued by the various affiliated veterinary colleges. For my part, I can imagine no more uncertain and ill-considered method of investigating the nature and standard of the instruction given in any particular subject of the curriculum and I cannot understand the attitude or mind of an editor who, with any regard to the responsibility of his position, permits the appearance of such a series of wild and reckless statements based to a large extent upon the imagination of the writer. Surely, if he really believes the statements contained therein, he ought, with the object of improving the education of the student, to bring the matter before the Council of the governing body of the profession, instead of crying out from the editorial chair of the *Veterinary Record*.

In all fairness to the school which I represent, I wish to make it clear that the subject of Parasitology occupies what is to my mind a very important position among the subjects taught in the final year. The instruction given covers a period of more than three months and is directed to enable the student to obtain a sound knowledge of the work, such as is likely to be required of him in the practice of his profession. The course includes not only the general classification and recognition of the various animal parasites affecting the domesticated animals, but also the modern ideas regarding their life history in so far as they bear upon prevention and treatment, the symptoms and nature of the diseases set up, the methods of diagnosis, and the appropriate preventive and curative measures.

What other form of training does the editor suggest should be given to the student? Or is it that he has simply been led away by the comments of Professors Nuttall and Leiper, and thought without further consideration that they might apply equally well to veterinary education?

If he understood the scope of the work covered by the student I am sure that he would not have allowed the second page of his article to appear in print and would be more inclined to consult some of the veterinary parasitologists before proceeding to offer any criticism upon the course given on the subject in the veterinary schools.

It is a matter for congratulation that the large proportion of the useful knowledge we have acquired during the past number of years in the subject of Parasitology has come from members of our own profession, and in this connection I need only mention the names of Railliet, Ransom, Maurice Hall, Veglia and Shilston.

In conclusion, I may add, as an indication of the efficiency of he teaching of Protozoology in this college, that this work rests in the capable hands of my colleague, Professor D. Kehoe.—Yours faithfully, J. F. Craig, M.A., M.R.C.V.S., Principal.

Veterinary College of Ireland,
Ballsbridge, Dublin,
7th November, 1924.

The Editor begs to acknowledge the receipt of the following:—

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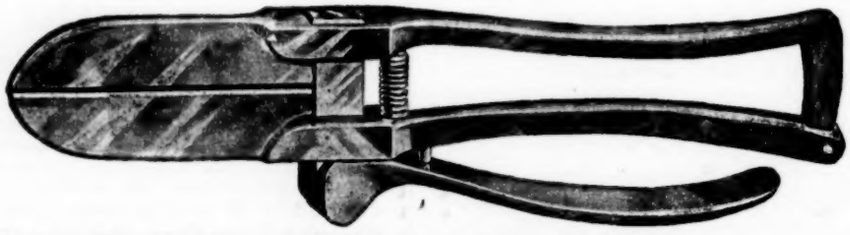

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